

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS AND INTERFERENCES

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In re Application of:	:	Examiner: K. Menon
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Markus GLOECKLE	:	
	:	
For: METHOD AND DEVICE	:	
FOR PROVIDING A FUEL	:	
	:	Art Unit: 1723
Filed: December 1, 2003	:	
	:	
Serial No.: 10/725,858	:	
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Signature: /Clifford A. Ulrich/  
 Clifford A. Ulrich (Reg. No. 42,194)

**APPEAL BRIEF PURSUANT TO 37 C.F.R. § 41.37**

SIR:

On July 31, 2007, Appellant submitted a Notice of Appeal from the last decision of the Examiner contained in the Final Office Action dated January 31, 2007 in the above-identified patent application. The Notice of Appeal is believed to have been received by the United States Patent and Trademark Office on August 3, 2007.

In accordance with 37 C.F.R. § 41.37, this brief is submitted in support of the appeal of the rejections of claims 1 to 7. For at least the reasons set forth below, the final rejections of claims 1 to 7 should be reversed.

**1. REAL PARTY IN INTEREST**

The real party in interest in the present appeal is ROBERT BOSCH GMBH of Stuttgart in the Federal Republic of Germany, which is the assignee of the entire right, title and interest in and to the present application.

**2. RELATED APPEALS AND INTERFERENCES**

There are no other prior or pending appeals, interferences or judicial proceedings known by the undersigned, or believed by the undersigned to be known to

Appellant or the assignee, ROBERT BOSCH GMBH, “which may be related to, directly affect or be directly affected by or have a bearing on the Board’s decision in the pending appeal.”

**3. STATUS OF CLAIMS**

Claims 1 to 10 are pending.

Claims 8 to 10 have been withdrawn from consideration.

Claims 11 to 19 have been canceled.

Claims 1 to 4 and 6 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,149,340 (“Waycuilis”).

Claims 1 to 7 stand rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,972,093 (“Partridge et al.”).

Claims 1 to 7 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Waycuilis and U.S. Patent Application Publication No. 2002/0139111 (“Ueda et al.”).

A copy of the appealed claims, *i.e.*, claims 1 to 7, is attached hereto in the Claims Appendix.

**4. STATUS OF AMENDMENTS**

In response to the Final Office Action dated January 31, 2007, Appellant submitted a “Reply Under 37 C.F.R. § 1.116” on April 17, 2007. The Reply Under 37 C.F.R. § 1.116 did not include any proposed amendments to the claims.

**5. SUMMARY OF CLAIMED SUBJECT MATTER**

Independent claim 1 relates to a method for supplying a fuel. Claim 1 recites that the method includes splitting-up the fuel at a separation device into a first fuel fraction in the form of a retentate and into a second fuel fraction in the form of a permeate that is aromatics-enriched. *Specification* at page 2, lines 6 to 17 and page 7, lines 11 to 17. Claim 1 recites that the method includes acting upon the separation device by a scavenging gas on a permeate side, so that a mixture of a fuel permeate and the scavenging gas is produced. *Specification* at page 2, lines 8 to 10 and page 4, lines 21 to 23.

6. **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

- A. Whether claims 1 to 4 and 6 are patentable under 35 U.S.C. § 102(b) over Waycuilis.
- B. Whether claims 1 to 7 are patentable under 35 U.S.C. § 102(e) over Partridge et al.
- C. Whether claims 1 to 7 are patentable under 35 U.S.C. § 103(a) over Waycuilis and Ueda et al.

7. **ARGUMENT**

A. **Rejection of Claims 1 to 4 and 6 Under 35 U.S.C. § 102(b)**

Claims 1 to 4 and 6 stand rejected under 35 U.S.C. § 102(b) as anticipated by Waycuilis. It is respectfully submitted that the present rejection should be reversed for at least the following reasons.

Independent claim 1 relates to a method for supplying a fuel. Claim 1 recites that the method includes splitting-up the fuel at a separation device into a first fuel fraction in the form of a retentate and into a second fuel fraction in the form of a permeate that is aromatics-enriched. Claim 1 recites that the method includes acting upon the separation device by a scavenging gas on a permeate side, so that a mixture of a fuel permeate and the scavenging gas is produced.

It is initially noted that to anticipate a claim, a reference must disclose each and every element of the claimed invention. Verdergaal Bros. v. Union Oil Co. of Cal., 814 F.2d 628, 2 USPQ2d 1051 (Fed. Cir. 1987). As more fully set forth above, Waycuilis does not disclose, or even suggest, all of the features recited in claim 1.

Waycuilis describes a method of separating lower boiling hydrocarbons from a hydrocarbon mixture using a membrane. The hydrocarbon mixture described in Waycuilis does not include a second fuel fraction in the form of a permeate that is aromatics-enriched. The Final Office Action asserts that Waycuilis “teaches the general process of removing impurities from hydrocarbons, and membranes or membrane modules designed to permit passage of specific impurities normally desired to be removed from hydrocarbons are readily available commercially, which would anticipate this limitation.” Final Office Action at page 3. However, there is not indication or suggestion whatsoever that the hydrocarbon mixture in Waycuilis contains any aromatics at all. Moreover, Appellant traverses any and all assertions of well-known fact included in the Final Office Action that are unsupported by published

information concerning these assertions and/or an affidavit under 37 C.F.R. § 1.104(d)(2) concerning these assertions.

The Final Office Action also asserts that “the reference is inherently capable of performing the separation claimed.” Final Office Action at page 3 (emphasis added). Appellant disagrees with this contention. Waycuilis makes no mention whatsoever of a second fuel fraction in the form of a permeate that is aromatics-enriched. Accordingly, the allegation that “the reference is inherently capable of performing the separation claimed” is apparently based on nothing more than pure speculation or conjecture. To rely upon a theory of inherency, “the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” See M.P.E.P. § 2112; emphasis in original; and see *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). “Inherency, however, may not be established by probabilities or possibilities,” and “[t]he mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *In re Robertson*, 169 F.3d 743, 745, 49 U.S.P.Q.2d 1949, 1950 to 1951 (Fed. Cir. 1999). Accordingly, the inherency arguments set forth in the Final Office Action must fail.

In the Advisory Action dated May 1, 2007, the Examiner asserts that “[w]ith respect to the arguments about inherency, Wycullis [sic] teaches removal of undesired components from liquid hydrocarbons, and aromatics is an undesired component.” As indicated above, there is no suggestion in Waycuilis that aromatics are even present whatsoever in the hydrocarbon mixture disclosed, or that aromatics would an “undesired component” within the hydrocarbon mixture disclosed. Notwithstanding the foregoing, the Examiner’s logic would appear to require an assumption that all undesired components are aromatics.

In view of the foregoing, it is plainly apparent that Waycuilis does not disclose, or even suggest, all of the features recited in claim 1. As such, it is respectfully submitted that Waycuilis does not anticipate claim 1.

As for claims 2 to 4 and 6, which depend from claim 1 and therefore include all of the features recited in claim 1, it is respectfully submitted that Waycuilis does not anticipate these dependent claims for at least the same reasons more fully set forth above in support of the patentability of claim 1.

In view of all of the foregoing, reversal of the present rejection is respectfully requested.

**B. Rejection of Claims 1 to 7 Under 35 U.S.C. § 102(e)**

Claims 1 to 7 stand rejected under 35 U.S.C. § 102(e) as anticipated by Partridge et al. It is respectfully submitted that the present rejection should be reversed for at least the following reasons.

Independent claim 1 relates to a method for supplying a fuel. Claim 1 recites that the method includes splitting-up the fuel at a separation device into a first fuel fraction in the form of a retentate and into a second fuel fraction in the form of a permeate that is aromatics-enriched. Claim 1 recites that the method includes acting upon the separation device by a scavenging gas on a permeate side, so that a mixture of a fuel permeate and the scavenging gas is produced.

It is noted that, according to the present application, “selected fuel fractions in vapor or gaseous form . . . get from [a] first cavity 14 into second cavity 16 by way of pervaporation.” Specification at page 5, lines 1 to 3 (emphasis added). In this regard, fuel fractions on the permeate side of the separation device are in vapor or gaseous form.

In contrast to the method of claim 1, Partridge et al. rely on a pressure differential to force fuel components across a separation membrane in liquid form. See, e.g., col. 3, line 65 to col. 4, line 8. These liquid fuel components, which effuse to the lower-pressure side of the membrane, cover the membrane surface at the lower pressure side. See, e.g., col. 4, lines 9 to 12. According to Partridge et al., “[b]y evaporating and removing the liquid fuel covering the low-pressure chamber side membrane surface, effusion of the aromatic components through the aromatic separation membrane 1101 to the low-pressure side chamber side continuously occurs.” Col. 7, lines 23 to 27. Thus, it is clear that, even if a gas enters the low-pressure side chamber 1105, the gas would not act upon the membrane, which is inaccessible to the gas due to the liquid layer of fuel components. In this regard, Partridge et al. do not disclose, or even suggest, a method including acting upon a separation device by a scavenging gas on a permeate side, so that a mixture of a fuel permeate and the scavenging gas is produced.

In view of the foregoing, it is plainly apparent that Partridge et al. do not disclose, or even suggest, all of the features recited in claim 1. As such, it is respectfully submitted that Partridge et al. do not anticipate claim 1.

As for claims 2 to 7, which depend from claim 1 and therefore include all of the features recited in claim 1, it is respectfully submitted that Partridge et al. do not anticipate these dependent claims for at least the same reasons more fully set forth above in support of the patentability of claim 1.

In view of all of the foregoing, reversal of this rejection is respectfully requested.

**C. Rejection of Claims 1 to 7 Under 35 U.S.C. § 103(a)**

Claims 1 to 7 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Waycuilis and Ueda et al. It is respectfully submitted that the present rejection should be reversed for at least the following reasons.

As indicated above, Waycuilis does not disclose, or even suggest, splitting up a fuel at a separation device into a first fuel fraction in the form of a retentate and into a second fuel fraction in the form of a permeate that is aromatics-enriched.

The Final Office Action asserts with regard to Ueda et al. that “[a]romatics in the permeate would be inherent.” Final Office Action at page 4 (emphasis added). Appellant disagrees with this contention and, for the reasons set forth above, the inherency arguments must fail. It is again noted that to rely upon a theory of inherency, “the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” See M.P.E.P. § 2112; emphasis in original; and see *Ex parte Levy*, 17 U.S.P.Q.2d at 1464. “Inherency, however, may not be established by probabilities or possibilities,” and “[t]he mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *In re Robertson*, 169 F.3d at 745, 49 U.S.P.Q.2d at 1950.

Furthermore, Ueda et al. disclose a system for separating fuel into fractions. Waycuilis, in contrast, teaches a process which separates hydrocarbons. There is no reason a person of skill in the art would expect success in combining the use of a sweep gas known in the separation of methane and ethane with a system for separating fuel fractions.

Finally, Ueda et al. disclose a process based on the separation of fuel fractions due to a high pressure side and a low pressure side of a membrane. If the system disclosed in Ueda et al. was provided with a supply of gaseous fuel, as disclosed in Waycuilis, the use of a high and a low pressure side of a membrane disclosed by Ueda et al. would be lost by using the sweep gas stream disclosed by Waycuilis. Also, the system described in Ueda et al. includes, on the permeate side of a separation device, a vacuum pump and a condenser. Vacuum pumps are normally destroyed under a continuous supply of a sweep gas stream.

In view of the foregoing, it is respectfully submitted that the combination of Ueda et al. and Waycuilis does not render unpatentable claims 1 to 7.

In view of all of the foregoing, reversal of this rejection is respectfully requested.

**8. CLAIMS APPENDIX**

A “Claims Appendix” is attached hereto and appears on the one (1) page numbered “Claims Appendix.”

**9. EVIDENCE APPENDIX**

No evidence has been submitted pursuant to 37 C.F.R. §§ 1.130, 1.131 or 1.132. No other evidence has been entered by the Examiner or relied upon by Appellant in the appeal. An “Evidence Appendix” is nevertheless attached hereto and appears on the one (1) page numbered “Evidence Appendix.”

**10. RELATED PROCEEDINGS APPENDIX**

As indicated above in Section 2, above, “[t]here are no other prior or pending appeals, interferences or judicial proceedings known by the undersigned, or believed by the undersigned to be known to Appellant or the assignee, ROBERT BOSCH GMBH, ‘which may be related to, directly affect or be directly affected by or have a bearing on the Board’s decision in the pending appeal.’” As such, there no “decisions rendered by a court or the Board in any proceeding identified pursuant to [37 C.F.R. § 41.37(c)(1)(ii)]” to be submitted. A “Related Proceedings Appendix” is nevertheless attached hereto and appears on the one (1) page numbered “Related Proceedings Appendix.”

**11. CONCLUSION**

For at least the reasons indicated above, Appellant respectfully submits that the art of record does not disclose or suggest the subject matter as recited in the claims of the above-identified application. Accordingly, it is respectfully submitted that the subject matter as set forth in the claims of the present application is patentable.

In view of all of the foregoing, reversal of all of the rejections set forth in the Final Office Action is therefore respectfully requested.

Respectfully submitted,

Dated: March 3, 2008

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## **CLAIMS APPENDIX**

1. A method for supplying a fuel, comprising:  
splitting-up the fuel at a separation device into a first fuel fraction in the form of a retentate and into a second fuel fraction in the form of a permeate that is aromatics-enriched;  
and  
acting upon the separation device by a scavenging gas on a permeate side, so that a mixture of a fuel permeate and the scavenging gas is produced.
2. The method according to claim 1, wherein the fuel is supplied for operating one of a combustion engine in a motor vehicle and a turbine.
3. The method according to claim 1, wherein the fuel is fractioned into a fuel retentate and a fuel permeate by pervaporation at a membrane.
4. The method according to claim 1, wherein, using a membrane, the fuel is fractioned into a fuel retentate having at least one of a first centane number and a first boiling point, and a fuel permeate having at least one of a second centane number and a second boiling point, wherein at least one of (a) the second centane number is lower than the first centane number and (b) the second boiling point is lower than the first boiling point.
5. The method according to claim 1, wherein, on the permeate side, a membrane is acted upon by one of air and an oxygen-containing gas mixture as scavenging gas under one of normal pressure and superpressure.
6. The method according to claim 1, further comprising:  
conducting the scavenging gas at least intermittently in a closed circuit;  
bringing the scavenging gas into contact with a membrane; and  
separating fuel components contained therein downstream in a fuel direction.
7. The method according to claim 1, further comprising, following contact with a membrane, conducting the scavenging gas via a condenser at which fuel components contained in the scavenging gas are separated.

### **EVIDENCE APPENDIX**

No evidence has been submitted pursuant to 37 C.F.R. §§1.130, 1.131, or 1.132. No other evidence has been entered by the Examiner or relied upon by Appellant in the appeal.

### **RELATED PROCEEDINGS APPENDIX**

As indicated above in Section 2 of this Appeal Brief, “[t]here are no other prior or pending appeals, interferences or judicial proceedings known by the undersigned, or believed by the undersigned to be known to Appellant or the assignee, ROBERT BOSCH GMBH, ‘which may be related to, directly affect or be directly affected by or have a bearing on the Board’s decision in the pending appeal.’” As such, there no “decisions rendered by a court or the Board in any proceeding identified pursuant to [37 C.F.R. § 41.37(c)(1)(ii)]” to be submitted.